

REMARKS

Appropriate headings have been incorporated into the specification.

Claims 1 - 19 have been amended to meet the objections and rejections under 35 USC 112 paragraph 2 and 37 CFR1.75(c).

Claim 1 has also been amended to make it clear that palm oil and palm stearin or alternative starting materials for use in the process of the invention. Support for this is found in claim 2 and the examples.

It is submitted that claim 20 as amended is allowable. Reference to the Examples has been deleted. In **Ex parte Bivens**, 53 USPQ2d 1045 (BPAI 1999), the Board decided that it "was not apparent ... why the inclusion in a claim of the sort of charts and diagrams in issue ... necessarily runs afoul" of the clarity standard. It is submitted that in the present case, the reference to Tables represent the simplest way in which to define the characteristics of the shortenings produced by the method claimed.

Turning now to the 35 USC 103(a) rejections, as shown by the examples, the present invention results in a shortening product in which there is a high retention of micronutrients with low or no trans fatty acids. This is accomplished by 1) interesterification of palm stearin either by itself or as a constituent in palm oil with rice bran oil; and 2) crystallization in a margarine crystallizer (according to page 7 line 4 this may be a scraped surface heat exchanger) under conditions to maximize retention of micronutrients, claims 6 -12 being directed to specific processing conditions in the crystallizer.

The examiner argues that the invention as claimed in claim 1 is obvious over a combination of Majumadar and Khatoon. Makumdar describes interesterification of palm stearin with various vegetable oils including soyabean, rapeseed, rice bran mustard oils. Slow crystallization of the products was apparently carried out for 16 hours at 20°C with the result, in the case of the combination of palm stearin and rice bran oil of a product that granular and depending on the relative amounts of the starting materials may be ghee-like. This does not therefore use the scraped-surface heat exchanger used as the margarine crystallizer of the present

invention .

Khatoon interesterifies palm oil with a variety of other vegetable oils, including sunflower, rice bran, coconut and soybean oils and makes margarine from an interesterified fat obtained from a blend of palm and sunflower oils. Although slip melting points were obtained from the product of interesterifying rice bran oil and palm oil, it is not clear that any margarine-type product was produced from this blend.

Nether of these references therefore describes the essential second stage of the applicants invention applied to an interesterified rice bran oil/palm oil or palm stearin product. Nor do these references point to the desirability of doing so. The one reference to producing a margarine is to a palm oil/sun flower oil. It is therefore submitted that claim 1 is not obvious over these references and meets the requirements of 35 USC 103.

So far as claims 2 - 5 are concerned, neither Baileys nor Nakasi supplies anything to overcome the essential omission from the Makumdar and Khatoon teachings noted above. Baileys simply provides a general description of interesterification of vegetable oils. Nakasi produced structured lipids from medium chain triglycerides produced by splitting and distilling coconut or palm kernel oils. However, the charge for forming such structured lipids may include "domestic oils", soybean, corn, cottonseed, canola, safflower, sunflower, peanut, olive and grain plant oils being specifically mentioned, and soybean, cottonseed and canola oils being preferred. It is therefore not clear how relevant the processing conditions described by Nakasi are to interesterification of rice bran oil and palm oil or palm stearin. In any case, Nakasi does not teach the conditions of claims 2 and 3 which require first heating palm stearin or palm oil to 60 - 80°C before adding rice bran oil. Nakasi's examples that use a mixture of oils as starting material all use mixed charges rather than heating one component first. Additionally, the reaction is carried out under a higher degree of vacuum than is required by claims 2 and 3. So far as claim 4 is concerned, Nakasi contains no teaching of separation of an aqueous layer or washing with hot water. So far as claim 5 is concerned, the deodorization disclosed in Nakasi is 230°C (column 7 line 33) which is outside the range specified in claim 5.

The combination of Majumdar, Khatoon, Baileys and Nakasi therefore fails to teach the process specified in any of claims 2 - 5.

Claims 6 -20 are thought by the examiner to be obvious over a combination of all of the references previously discussed when read further in the light of Gunstone and Schiff. The basic defect in the combination of Majumadar, Khatoon, is just as relevant to these claims as to claim 1. Further neither Baileys nor Nakasi adds anything to that combination because neither teaches the use of a margarine crystallizer which is a required feature of claims 6 - 13 or the nature of the final product as being as specified in any of claims 14 - 20. Neither Gunstone nor Schiff remedies these defects. Gunstone teaches conventional production of shortening from one or two hydrogenated oils. The relevance of its teaching to the interesterified materials of the present invention is not clear. Claim 1 specifically excludes the use of hydrogenation. It is, however, pointed out that the feed temperatures and the temperature to which product is cooled set out in Gunstone fall outside the ranges specified in claims 6 and 8 and that Gunstone is silent on the questions of back pressure, mutator speed, trans content, tocopherol content, phytosterols content and oryzanol content, which form the substance of claims 9, 10, 11, 14, 15, and 16.

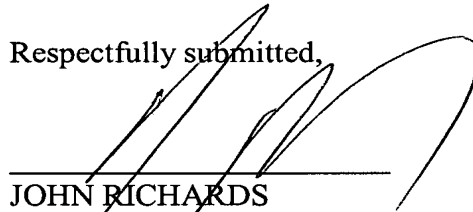
Schiff describes use of a blend of liquid oil and fat for making margarine. The fat may be produced by interesterification. Interesterification may be of a partially or fully hydrogenated coconut, babasu, palm kernel, tucum, murumuru, or ouricurum fat with a fat that is palmfat, soybean oil, groundnut oil, sunflower oil, maize oil or rapeseed oil. As noted above, claim 1 of the present application on which all other claims are dependent specifically excludes the use of hydrogenation. Fractionation is carried out prior to making the margarine. The margarine is stated to be produced in a Votator but no process conditions are given. Nor are any details given of the product parameters set out in the present claims. This document therefore also fails to provide information pointing to the present invention.

The cited prior art taken as a whole therefore fails to provide any reason why one skilled in the art would wish to carry out a process as claimed in any of the claims. Absent a reason for carrying out the claimed invention, it is not obvious. *KSR International Co. v. Teleflex Inc.* 127 S. Ct. 1727 (2007).

It is therefore submitted that the invention as claimed meets the requirements of 35 USC 103(a).

In view of the foregoing, it is submitted that this application is in order for allowance and an early action to this end is respectfully solicited.

Respectfully submitted,



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